Chapter 3 - City of Anderson

PURPOSE

This chapter serves as the Climate Action Plan (CAP) for the City of Anderson. The City has developed this plan in order to contribute to the State's climate protection efforts and to provide California Environmental Quality Act (CEQA) streamlining benefits for new residential and commercial development projects within the community. As stated in State CEQA Guidelines Section 15183.5, for a qualified greenhouse gas (GHG) reduction strategy to provide streamlining benefits for a local jurisdiction, it needs to include the following elements:

- GHG emissions for the jurisdiction need to be quantified through a comprehensive and complete inventory effort. This means identifying and analyzing GHG emissions from specific actions or categories of actions;
- GHG emissions need to be quantified for both existing and anticipated emissions over a specified time period, that result from current and planned activities within the defined jurisdiction area;
- Establish a reduction target for the jurisdiction, below which the contribution to GHG emissions from activities covered by the plan would not be considered cumulatively significant. All assumptions and calculations in making this determination should be transparent. A margin of safety should be built into the plan as well;
- Specify policies, measures, or programs, including performance standards that would collectively achieve the specified emissions reduction level if implemented as a specific project requirement or across a community as an incentive program. An overall reduction plan needs to address existing as well as new development reduction strategies, and should rely primarily on mandatory measures;
- A clearly defined mechanism to monitor the plan's implementation progress toward achieving reduction levels, and to require amendment if the plan is not achieving specified levels.

The content of this chapter is structured to demonstrate compliance with these required elements and to provide the City and community with a useful resource to implement these important actions.

GREENHOUSE GAS EMISSION INVENTORY AND FORECASTS

The following section provides a summary of the City of Anderson's communitywide 2008 baseline GHG emissions inventory, the business-as-usual emissions forecasts, and the adjusted business-as-usual forecasts. Detailed information regarding the calculation and assumptions used in preparing the GHG emissions inventory and forecasts is provided in Appendix A.

GREENHOUSE GAS EMISSIONS INVENTORY

The 2008 GHG emissions inventory serves as the foundation of the City's CAP. Using data collected from City departments, utilities, and other relevant agencies and locally-specific emissions factors, the inventory provides an accurate assessment of the sources of GHG gas emissions generated within or as a direct result of the community in the baseline year. This data allows the City to identify appropriate GHG reduction targets and strategies.

To ensure a comprehensive and complete GHG inventory, the City developed a *Full Inventory* that contains emissions from all sectors including building energy (electricity and natural gas), water (including wastewater treatment emissions), waste, transportation, off-road vehicles, and recreation. There is no agriculture, forestry, and stationary source emissions generated in the city, so the total and jurisdictional inventory are identical.

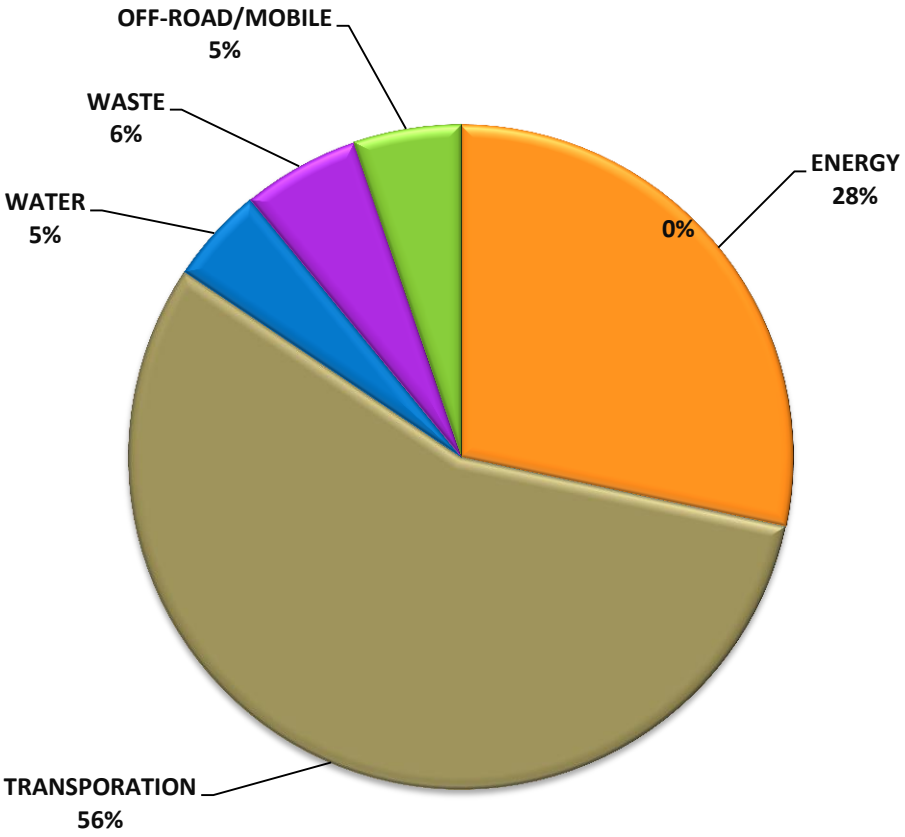
Total and Jurisdictional Inventory

In 2008, the community's total baseline emissions included 88,625 metric tons of carbon dioxide equivalent emissions (MT CO_2e). As shown in Figure 3.1 and Table 3.1, transportation-related emissions generated the largest portion of emissions at approximately 49,679 MT CO_2e (56% of the total emissions), followed by energy-related emissions at 25,113 MT CO_2e (28% of the total emissions). The water, solid waste, and off-road/recreation sectors comprise the remaining 16% of the emissions inventory. In the City of Anderson, the total inventory and jurisdictional inventories are the same because there are no non-jurisdictional emissions.

Table 3.1 – Greenhouse Gas Emissions Inventory and Business-as-Usual Forecasts: 2008, 2020, 2035, and 2050

Sector	2008 (MT CO_2e/yr)	2020 (MT CO_2e/yr)	% Change from 2008	2035 (MT CO_2e/yr)	% Change from 2008	2050 (MT CO_2e/yr)	% Change from 2008
Energy	25,113	27,526	10%	32,669	30%	38,601	54%
Transportation	49,679	56,520	14%	73,953	49%	93,560	88%
Solid Waste	5,057	5,414	7%	5,911	17%	6,632	31%
Water	4,156	4,449	7%	4,857	17%	5,450	31%
Off-Road and Recreation	4,618	4,945	7%	5,400	17%	6,058	31%
TOTAL INVENTORY	**88,625**	**98,854**	**11.5%**	**122,790**	**38.5%**	**150,302**	**69.6%**

Figure 3.1 – 2008 Jurisdictional Greenhouse Gas Emissions Inventory by Sector



BUSINESS-AS-USUAL GREENHOUSE GAS EMISSIONS FORECASTS

Developing realistic GHG emission forecasts is a critical step in preparing a CAP. Emission forecasts estimate future emissions levels and provide insight regarding the scale of reductions necessary to achieve an emissions target. The City has prepared GHG forecasts area for 2020, 2035, and 2050 horizon years.

The City's emissions are forecasted to be 98,854 MT CO_2e in 2020, 122,790 MT CO_2e in 2035, and 150,302 MT CO_2e in 2050, representing growth of 12%, 39%, and 70%, respectively, from the 2008 baseline emissions. Table 3.1 shows that while emissions are forecasted to increase in all sectors, transportation-related emissions are anticipated to increase at a greater rate than other sectors.

The forecasts were established using sector-specific growth factors (e.g., energy demand forecasts) or the City's population and employment growth projections. When based on population and employment growth projections, the GHG forecasts assume that baseline year activity intensity (e.g., waste generation per capita) will continue into the future. The business-as-usual GHG forecasts do not include emission reductions associated with State GHG reduction programs or implementation of the local actions described in this CAP.

The forecasts were developed for planning purposes, and represent the best-available estimates. Given the complexity of each emissions sector and the unpredictable nature of market conditions, human behavior and demographics, they will need to be updated in the future as data becomes available. The City will reevaluate the forecasts throughout the CAP implementation process.

ADUSTED BUSINESS-AS-USUAL GREENHOUSE GAS EMISSIONS FORECASTS

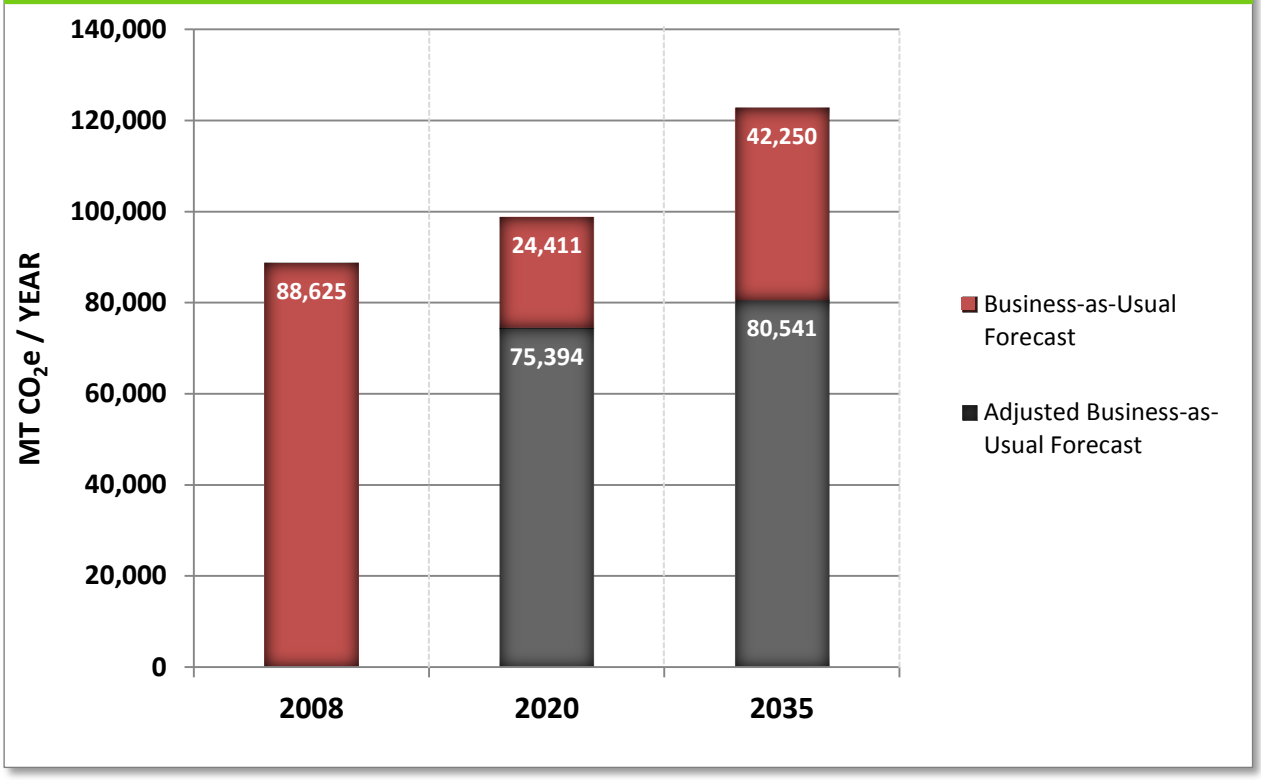
Table 3.2 describes the emission reductions anticipated to occur within the community through implementation of State and federal policies and regulations. The largest anticipated reductions are from State and federal fuel efficiency improvements to passenger vehicles and light-duty trucks. As residents and businesses replace older vehicles with newer ones, people will consume less fuel and generate fewer emissions per vehicle mile traveled. California's low carbon fuel standard will also reduce transportation-related emissions in the community by requiring a transition away from fossil fuels (i.e., gasoline and diesel) toward lower-carbon bio-fuels (e.g., ethanol). California law also requires all utilities to obtain 33% of their electricity from renewable energy sources by 2020. In 2008, about 12% of the Pacific Gas and Electric's electricity portfolio was generated from renewable sources. This increase in renewable electricity will reduce the community energy-related emissions. The medium- and heavy-duty vehicle efficiency improvements program and California Energy Code (Title-24) requirements for new construction will create smaller, but still important, communitywide emission reductions.

State and federal actions that reduce communitywide emissions in City of Anderson will make it easier for the community to achieve 2020 and 2035 emission reduction goals. As shown in Table 3.2 and Figure 3.2, with implementation of State and federal actions, communitywide emissions would be 75,394 MT CO_2e/yr in 2020 and 80,541 MT CO_2e/year in 2035.

Table 3.2 – Emission Reductions from State and Federal Actions 2020 and 2035

State or Federal Action	2020 Reduction (MT CO_2e/year)	2035 Reduction (MT CO_2e/year)
Passenger vehicle and light-duty truck fuel efficiency standards	11,921	27,054
Low Carbon fuel standard	5,459	6,648
Non-Pavley Passenger Vehicle Efficiency Programs	1,427	1,848
Medium- and heavy-duty vehicle efficiency improvement program	346	462
2008 and 2013 California Title-24 standards	506	606
Renewable portfolio standard (33% by 2020)	4,752	5,632
Total	**24,411**	**42,250**

FIGURE 3.2 - BUSINESS-AS-USUAL & ADJUSTED BUSINESS-AS-USUAL EMISSIONS FORECASTS



GREENHOUSE GAS EMISSION REDUCTION TARGETS

The City has selected emission reduction targets that are both ambitious and practical. The targets will allow the City to contribute to State climate protection efforts and are purposely set at levels that are likely to provide CEQA streamlining benefits to new development projects in the community. City of Anderson's GHG reduction targets are as follows:

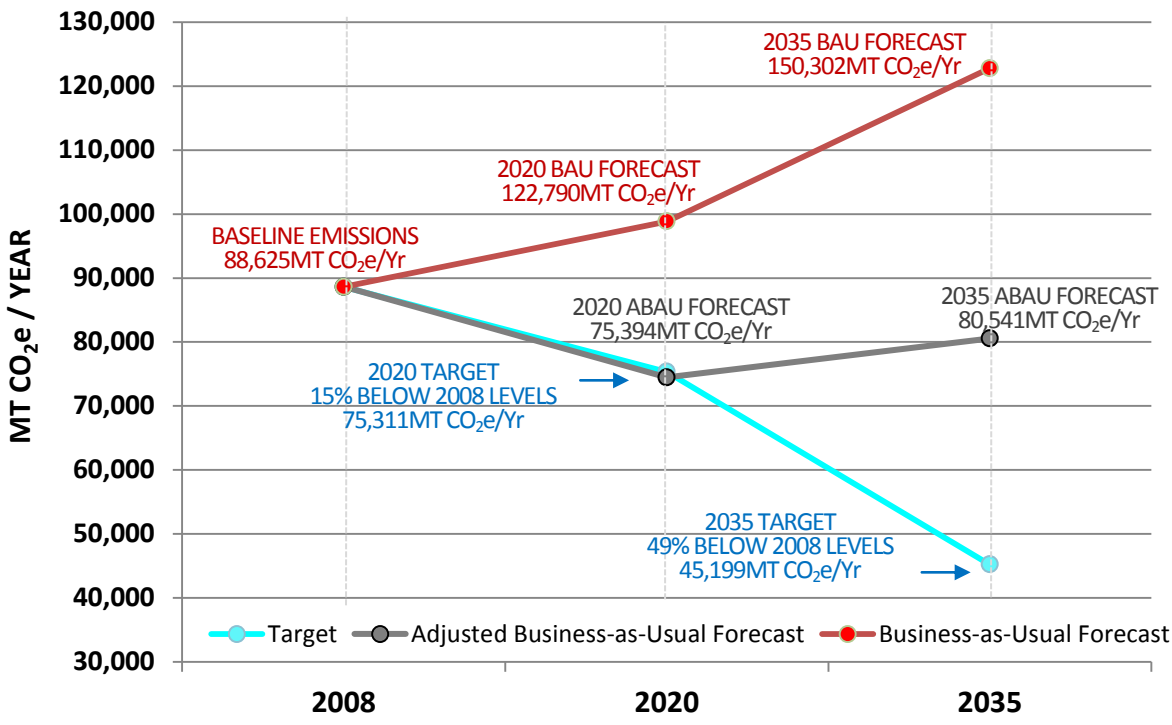
- Reduce community emissions to 15% below 2008 levels by 2020 (75,331 MT CO2e/yr)
- Reduce community emissions to 49% below 2008 levels by 2035 (45,198 MT CO2e/yr)
- Reduce community emissions to 83% below 2008 levels by 2050 (15,066 MT CO2e/yr)

The California Global Solutions Warming Act (AB 32) requires the State to reduce statewide GHG emissions to 1990 levels by 2020. The City selected its 2020 target in order to contribute the community's fair share to this near-term effort. This target aligns with direction provided by the California Air Resources Board. Executive Order S-03-05 directs the State to reduce emissions to 80% below 1990 levels by 2050. In order to contribute to this long-term effort, the City strives to achieve an equivalent goal of reducing community emissions to 83% below 2008 levels in the same time period. To be on a path toward that goal, the City will need to reduce emissions to a level 49% below 2008 by 2035. Calculations showing the logic of this interim goal can be examined in Appendix C.

This CAP describes measures that can achieve the 2020 reduction target and work toward the 2035 target. While the City supports the goal of Executive Order S-03-05, it recognizes that estimating 2050 emission levels and reduction potentials are highly speculative. For this reason, the City has chosen not

to focus on the 2050 reduction target at this time. The City will regularly re-evaluate its long-term GHG reduction efforts to reflect future conditions and adjust emission reduction measures accordingly.

FIGURE 3.3 - GREENHOUSE GAS REDUCTION TARGETS 2020 & 2035



GREENHOUSE GAS EMISSION REDUCTION MEASURES

To meet its adopted emissions reduction targets, the City will implement policies, programs, and other projects related to energy, waste, water, transportation, and carbon sequestration. This section provides a summary of the CAP's overall emissions reduction potential and describes the measures that the City will use to implement the local actions.

SUMMARY OF REDUCTIONS

Table 3.3 describes the emissions reduction potential of the City's adopted CAP measures. In 2020, local actions are anticipated to reduce approximately 5,491 MT CO_2e/yr. The waste-related measures are expected to provide the largest portion, 63%, of the local reductions. The energy-related measures will provide around 24%, followed by transportation (12%), and carbon sequestration (0.9%). Table 3.4 and Figure 3.3 illustrate that together the local and state actions are expected to reduce communitywide emissions to approximately 23.3% below 2008 baseline emissions levels, surpassing the adopted 2020 target (15% below 2008 levels) by 6,379 MT CO_2e/yr. This estimated level of reduction conforms to the CEQA requirements for a qualified GHG reduction strategy and can be expected to provide streamlining benefits for compliant projects constructed within the jurisdiction prior to 2020.

In 2035, local actions are anticipated to reduce approximately 9,000 MT CO_2e/yr. The source of reductions is very similar to those in 2020, with waste and energy-related measures contributing the

two highest proportions. Local and state actions are expected to reduce communitywide emissions to approximately 19.3% below 2008 baseline emission levels, a level that falls short of the City's adopted 2035 target (49% below 2008 levels). The City anticipates that new technologies and State or federal policies will be developed and will assist the community to achieve this longer-term goal.

Table 3.3 – Quantified Greenhouse Gas Reductions

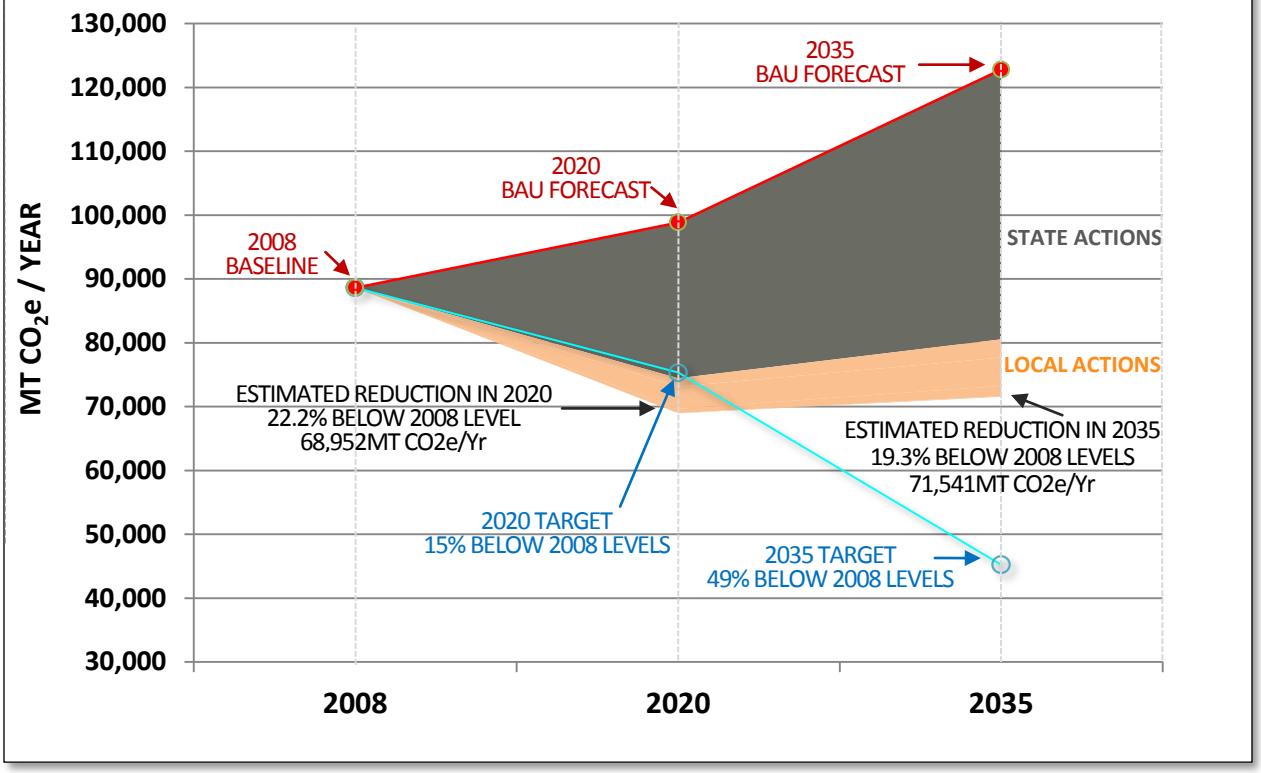
Sectors and Measures		2020 (MT CO_2e/yr)	2035 (MT CO_2e/yr)
Building Energy			
BE-1	Existing Buildings	127	285
BE-2	New Construction	0	0
BE-3	Commercial Lighting	183	496
BE-4	Efficient Appliances	229	566
BE-5	Smart Grid Integration	711	1,364
BE-6	Solar Water Heaters	56	149
Subtotal		***1,306***	***2,861***
SW-1	Enhanced Organic Waste Diversion	159	406
SW-2	Methane Recovery	3,319	4,029
Subtotal		***3,478***	***4,435***
T-1	Mixed Use Development	263	1,014
T-2	Bicycle Lane Expansion	23	95
T-3	Pedestrian Environment Enhancements	352	460
T-4	Commute Trip Reduction	20	24
Subtotal		***657***	***1,594***
Carbon Sequestration			
GI-1	Urban Forest	50	110
Subtotal		***50***	***110***
TOTAL LOCAL ACTION REDUCTIONS		**5,491**	**9,000**

Table 3.4 - Reduction Potential of City's CAP Measures

	2008	2020			2035		
	Baseline	BAU	ABAU	ABAU + Local CAP Measures	BAU	ABAU	ABAU + Local CAP Measures
GHG Emissions (MT CO_2e/Yr)	88,625	98,854	74,443	68,952	122,790	80,541	71,541
Change from Baseline	NA	11.5%	-16.0%	-22.2%	38.6%	-9.1%	-19.3%
CAP GHG Reduction Targets	NA	Target = 15% below 2008 level	Meets Target	Meets Target	Target = 49% below 2008 level	Does Not Meet Target	Does Not Meet Target

Figure 3.4 demonstrates the relative contribution of State and the City's local actions. While the State actions alone achieve the 2020 target, the local actions provide additional reductions and demonstrate the City's contribution to the State's climate protection efforts. In 2035, State and local reductions increase in scale, but do not provide enough reductions to counteract the community's forecasted emissions growth or the more aggressive 2035 target.

FIGURE 3.4: EMISSIONS REDUCTION POTENTIAL OF STATE AND LOCAL ACTIONS



REDUCTION MEASURES

The CAP measures define the programs, policies, and projects that the City will undertake to accomplish its emission reduction objectives. Within this section, the measures are organized into four categories including: energy, waste, transportation, and carbon sequestration. Each category begins with an introduction followed by the pages that describe the component measures.

Measure Structure

To aid the reader and to facilitate implementation of the CAP, each measure contains the following information:

- **Emission Reductions -** Reduction potential values are provided after each measure title, and identify the estimated annual emission reductions anticipated in 2020 and 2035 in MT CO_2e/yr. All measures have a quantifiable GHG reduction potential.
- **Description** - Measure descriptions provide important background information and describe the City's rationale and policy direction. Additionally, some descriptions provide guidance that will be used in program implementation or highlight the City's actions to date that relate to a particular measure.
- **Actions and Progress Indicators** - Action steps and progress indicators are provided in a table following each measure description. Actions identify specific steps that the City will take to implement the measure. The table also identifies responsible departments. Progress indicators enable staff, the City Council, and the public to track implementation and monitor overall CAP progress. Specific progress indicators are provided for both 2020 and 2035.

ENERGY MEASURES:

The use of electricity and natural gas within residential, commercial, and industrial buildings generated over 28% of Anderson's communitywide GHG emissions in 2008. The energy measures described on the following pages recommend ways to increase energy efficiency in existing buildings, enhance energy performance for new construction, and increase the use of renewable energy.

Measure BE-1: Energy Efficiency Retrofits

2020 GHG Reduction Potential: 127 MT CO_2e/yr

2035 GHG Reduction Potential: 285 MT CO_2e/yr

Sixty three percent of owner-occupied homes and forty nine percent of renter-occupied units in Anderson were built before the State of California adopted the Title 24 energy efficiency requirements in 1980. Energy efficiency retrofits help residents reduce their utility bills and the community's building-related emissions. Energy audits can identify inefficient heating and cooling systems and gaps in the building's envelope through which heat escape or enter. Audits can also help homeowners and building owners prioritize cost-effective retrofit investments to maximize their financial returns.

The City will partner with PG&E to implement programs that promote energy efficiency retrofits in existing residential buildings. PG&E currently offers a variety of rebates for installing energy-efficient features, including:

- cool roofs,
- attic and wall insulation,
- cooling and heating equipment, and
- swimming pool pumps.

PG&E also offers rebates on whole-house packages for homeowners that wish to address energy efficiency holistically.

The Energy Upgrade California website (www.energyupgradeca.org) is another resource to identify rebates and incentive programs throughout the state. There are currently over 50 programs available to Anderson residents, which are funded by utility companies and state agencies. Incentives and rebates are available to help home and business owners improve efficiency in the following areas:

- air and duct sealing and attic, wall, and hot water pipe insulation;
- water-efficient fixtures (e.g., low-flow shower heads);
- HVAC upgrades (e.g., air conditioners, whole house fans, ducted evaporative cooling systems, ceiling fans);
- cool roofs;
- hot water heaters/blankets;
- indoor lighting; and
- ENERGY STAR appliances (e.g., dishwashers, refrigerators, freezers).

The City currently works with the California Department of House to provide CDBG grant funding to homeowners that qualify for grant funding to improve their home energy efficiency. The City will develop a comprehensive community education outreach campaign with use of newspaper advertisements, website promotion and community event giveaways, based on funding availability. The City will also encourage use of other available resources such as California Flex Your Power, the Department of Energy's (DOE) Weatherization Assistance Program, and PG&E's SmartEnergy Analyzer™ program, all of which link residential property owners to educational and financial resources. The City will emphasize voluntary participation in these energy efficiency retrofit programs, in lieu of mandatory requirements.

ACTION		RESPONSIBILITY
Short-Term		
A	Partner with PG&E to promote and improve utility incentives for energy conservation programs for older homes and renovations.	Building Department
B	Facilitate the use of energy efficient demonstration homes as an education/promotion tool.	Building Department
Medium-Term		
C	Consider development of a Property Assessed Clean Energy (PACE) program.	Planning Department
PROGRESS INDICATORS		**YEAR**
1	10% of existing residential units and 10% of existing non-residential square feet perform cost-effective energy efficiency package improvements (e.g., insulation, duct sealing, AC refrigerant recharge)	2020
2	22.5% of existing residential units and 22.5% of existing non-residential square feet perform cost-effective energy efficiency package improvements (e.g., insulation, duct sealing, and AC refrigerant recharge)	2035

Measure BE-2: New Construction

2020 GHG Reduction Potential: Included in Title-24 State Reductions

2035 GHG Reduction Potential: Included in Title-24 State Reductions

The City will partner with PG&E to promote building energy efficiency through utility incentives and streamlined permitting. Energy efficient building design and construction can help reduce heating needs in the winter and cooling needs in the summer.

The 2010 CalGreen Building Code (CalGreen) sets guidance for higher building performance standards. CalGreen offers two voluntary compliance pathways to achieve 15% and 30% energy efficiency above the State's 2008 Title 24 Energy Code efficiency requirements. Contingent upon funding availability, the City will offer priority permitting to new residential projects that demonstrate 15% higher energy efficency than Title 24 requirements. These efforts will serve to increase energy efficiency of new residential buildings and would help to lower homeowners utility bills.

Additional energy savings are anticipated to be created through the 2013 update of the State's Title 24 standards. All new construction developed between 2010 and 2015 has been, or will be, required to meet the 2008 Title-24 requirements. All new construction developed between 2015 and 2020 will be required to comply with the updated 2013 Title 24 requirements that the California Energy Commission estimates will be 20-25% more energy efficient than the 2008 standards. The City anticipates that more than 50% of all new construction in the City will be subject to the 2013 Title 24 standards. The City's CAP includes reductions associated with the 2008 and 2013 Title 24 standards with the statewide reductions (see appendix B for details). Further increases in Title 24 standards are anticipated after 2017 but are too speculative at this point in time to quantify.

Because the State develops the Title 24 standards for each code period with the goal of balancing energy efficiency and cost-effectiveness, the City believes it is not prudent to require efficiency at a level higher than the State's standard. The City will not adopt an efficiency standard more stringent than the State's code.

ACTION		RESPONSIBILITY
Short-Term		
A	Partner with PG&E to promote and provide utility incentives for energy efficiency programs in new construction.	PG&E; Building Department
B	Develop a priority permitting program for new construction projects that demonstrate 15% higher efficiency than Title 24 requirements.	PG&E; Building Department
PROGRESS INDICATORS		**YEAR**
1	50% of new construction to achieve 25% reduction in energy use above 2008 Title 24energy efficiency standards.	2020
2	80% of new construction to achieve 25% reduction in energy use above 2008 Title 24energy efficiency standards.	2035

Measure BE-3: Commercial Lighting

2020 GHG Reduction Potential: 183 MT CO_2e/yr

2035 GHG Reduction Potential: 496 MT CO_2e/yr

There is approximately 870,000 square feet of non-residential building space in Anderson. Conventional commercial lighting used to illuminate these buildings, including T12 fluorescent bulbs, consumes more energy than new T8 or T5 lights, light-emitting diodes (LED), and other efficient lighting technologies. Retrofitting existing commercial interior lighting is a relatively easy upgrade to make, and rebate programs are available to reduce the already short simple payback period.

PG&E currently provides a commercial lighting retrofit program to all businesses, to replace old inefficient T-12 fixtures with energy-efficient fluorescent lighting. The lighting upgrade program includes rebates to upgrade from T12 to T8 lamp and electronic ballast, de-lamp T12s, and upgrade T12 fixtures to more efficient interior fixtures.

The City will work with non-residential developers during the building permit phase to ensure that applicable rebate programs are used to their greatest effect by community's businesses and institutional building owners. The City will also provide targeted outreach and technical assistance to owners/mangers of large (i.e., > 50,000 sq ft), non-residential buildings to encourage participation in PG&E's lighting upgrade program. The City's outreach will include a description of the short payback period associated with lighting upgrade improvements.

In the mid-term, the City will consider expansion of outreach program to focus on parking lot and public area lighting.

ACTION		RESPONSIBILITY
Short-Term		
A	Partner with PG&E to promote and provide utility incentives for commercial interior lighting retrofits.	PG&E; Planning
B	Discuss applicable rebates and incentive programs with building developers during the building permit phase	Building
C	Provided targeted outreach to building owners/managers of large non-residential buildings	Planning
Medium-Term		
D	Develop a parking lot and public area lighting-specific outreach program.	Planning
PROGRESS INDICATORS		**YEAR**
1	40% of businesses improve interior and exterior lighting efficiency by 40%.	2020
2	90% of businesses improve interior and exterior lighting efficiency by 40%.	2035

Measure BE-4: Efficient Appliances

2020 GHG Reduction Potential: 229 MT CO_2e/yr

2035 GHG Reduction Potential: 566 MT CO_2e/yr

As building shells and systems become increasingly efficient, addressing energy consumption from appliances and electronics will become more important in reducing building energy use and residents' utility bills. This measure is designed to encourage voluntary community participation to upgrade home appliances to Energy Star or other energy efficient models. Modern technology has contributed to the development of high-quality, energy efficient appliances. The Energy Star rating is an internationally recognized standard for energy efficient consumer products. According to the EPA, devices that have an Energy Star certification, such as office equipment, home appliances, and lighting products, generally use 20 to 30 percent less energy than required by federal standards.

The City will partner with PG&E and other organizations to promote existing financial incentives and rebates for energy-efficient appliance upgrades and replacements in both new and existing residential units. Successful implementation of this measure requires a broad public outreach campaign to reach all segments of the community. The City will identify community events at which it can staff an informational table to advertise energy-efficiency rebates and incentives, including farmers' markets, Burney Basin Days, the Strawberry festival, and the Shasta County Fair. The City encourage PG&E to include informational inserts in utility bills that advertise PG&E's existing rebate programs and the simple cost payback associated with replacing inefficient appliances. Targeted outreach should also be provided to the building community at the building permit phase and to homebuyers and renters through a partnership with local realtors and property managers.

ACTION		RESPONSIBILITY
Short-Term		
A	Collaborate with PG&E to promote existing financial incentives programs to encourage voluntary replacement of inefficient appliances with new ENERGY STAR appliances	PG&E; Planning
B	Advertise energy-efficient appliance rebates at community events	Planning
PROGRESS INDICATORS		**YEAR**
1	40% of existing homes will replace old model refrigerators, dishwashers, and 80% of existing homes will replace old clothes washers with new Energy Star models. 70% of new homes will install Energy Star refrigerators, dishwashers and clothes washers.	2020
2	90% of existing homes will replace old model refrigerators, dishwashers, and clothes washers with new Energy Star models. 90% of new homes will install Energy Star refrigerators, dishwashers and clothes washers.	2035

Measure BE-5: Smart Grid Integration

2020 GHG Reduction Potential: 711 MT CO_2e/yr

2035 GHG Reduction Potential: 1,364 MT CO_2e/yr

The 'Smart Grid' is an emerging energy management system which uses information technology to significantly improve how electricity is managed and controlled. Smart meters, which use a technology that enables users to take full advantage of the smart grid, will eventually provide utility customers with access to detailed energy use and cost information, new dynamic pricing programs based on peak-energy demand, and the ability to program home appliances and devices to respond to energy use preferences based on cost, comfort, and convenience.

The first step in saving energy from the smart grid is to install smart meters, which allow customers to track their home or businesses energy use throughout the day. In 2011, PG&E began installing smart meters in homes and businesses throughout Shasta County, including Anderson. The value of the smart grid does not end at the meter, however; its full value is realized when it extends into technologies used in homes and businesses. For example, smart appliances can be programmed to operate during off-peak hours when electricity prices are cheaper.

The City will encourage voluntary adoption of smart grid technology in new and existing construction, promoting the use of smart appliances in homes and businesses. The City will develop an outreach campaign highlighting the benefits of smart grid integration that can occur following smart meter installation. The outreach campaign should describe how energy management systems work inside a building, including internet-based displays (e.g., smart phone applications) that show how much energy is being used and smart appliances that can defer discretionary electricity use to off-peak hours.

ACTION		RESPONSIBILITY
Medium-Term		
A	Develop an outreach program that informs property owners and businesses about smart grid and smart appliance technologies, as well as energy conservation opportunities using smart meter technology.	Planning
PROGRESS INDICATORS		**YEAR**
1	20% of existing and 50% of new residential units to use Smart Grid technology.	2020
2	45% of existing and 90% of new residential units to use Smart Grid technology.	2035

Measure BE-6: Solar Water Heaters

2020 GHG Reduction Potential: 56 MT CO_2e/yr

2035 GHG Reduction Potential: 149 MT CO_2e/yr

Anderson's location result in a relatively high solar insolation rating (comparable to southern cities, such as Orlando, Fl and New Orleans, LA), which makes it an excellent candidate for effective adoption of solar technologies. Solar hot water systems are a simple and reliable method for harnessing the sun's energy to provide for hot water needs.

Solar hot water systems can be a cost-effective replacement for inefficient water heaters. According to the California Solar Initiative (CSI), solar hot water systems can lower energy bills by meeting 50 to 80 percent of hot water needs. Though the high capital cost of solar water heater upgrades can pose a financial burden to homeowners, there are a range of financing and rebate options to offset these initial investment costs. Through the CSI-Thermal Program, single-family homeowners are eligible for SWH rebates of up to $1,875. Non-residential customers who install certified SWH systems can qualify for incentives of up to $500,000 to offset capital costs. Incentive levels will decline in four stages as the solar thermal market grows. Actual incentive payments will be determined by the thermal output of the system. The California Solar Water Heating and Efficiency Act of 2007 (AB 1470), created a 10-year program aimed at installing solar water heaters in homes and businesses. AB 1470 was designed to lower the initial costs of purchasing a system, which averages around $3,000-$6,000.

The City will partner with PG&E to identify rebate options for residents to voluntarily replace inefficient water heating systems with solar water heaters. During retrofit the City will encourgae customers to switch to electric backup water heating system, which will result in additional GHG reductions when compared to natural gas heaters. There are a number of financing options that may be used to reduce upfront costs, such as federal tax incentives through the Energy Policy Act of 2005, and financial incentives through AB 1470. The City will work the California Solar Initiative to create outreach programs to provide information about the benefits of solar hot water heaters to encourage participation. The City will create a streamline permit process for solar water heater installation.

	ACTION	RESPONSIBILITY
	Short-Term	
A	Work with PG&E and California Solar Initiative to develop an outreach program to maximize installation of solar hot water systems in residential and commercial buildings.	Planning
B	Streamline permitting (e.g., building, electric, plumbing) for solar hot water system installation.	Building Department
C	Encourage the use of California Solar Initiative, US EPA, PG&E, and other rebates for solar hot water heaters	Planning
	PROGRESS INDICATORS	**YEAR**
1	2% of residences and businesses install a solar hot water system.	2020
2	4.5% of residences and businesses install a solar hot water system.	2035

WASTE MEASURES:

The decomposition of the community's solid waste in landfills generated approximately 6% of Anderson's communitywide GHG emissions in 2008. The waste-related measures described on the following pages recommend ways to increase diversion of organic lumber wastes and describe the County's implementation of enhanced landfill methane capture systems, which will also benefit the City's share of methane recovery.

Measure SW-1: Enhanced Organic Waste Diversion

2020 GHG Reduction Potential: 159 MT CO_2e/yr

2035 GHG Reduction Potential: 406 MT CO_2e/yr

Anderson promotes waste diversion from landfills by providing separate waste bins for trash, recyclable items and green yard waste. In the short-term, the City will augment existing waste diversion programs, conduct a variety of outreach programs to increase participation in waste reduction, recycling and composting programs, and work with waste hauling operators to ensure achievement of this goal. Specifically the City will develop an outreach program to encourage enhanced yard waste collection and construction and demoltion waste diversion. The City will enforce the State requirment that builders divert 50% of all construction and demolition related waste.

As mid-term actions the City will explore recycling franchise agreements with Pay-as-You-Throw (PYT) waste disposal programs, participate in EPA's WasteWise Communities program that provides technical assistance to promote cost savings and efficiency with waste prevention, recycling, and purchasing recycled content products and explore implementing a commercial recycling program designed to divert commercial solid waste by businesses.

	ACTION	RESPONSIBILITY
	Short-Term	
A	Enhance implementation of existing recycling and composting programs through education and outreach, including specific enhanced yard waste and construction and demolition waste diversion programs.	Public Works
B	Incorporate waste reduction measures into future solid waste and recycling franchise agreements.	Public Works
	Medium-Term	
C	Explore opportunity to incorporate waste reduction measures into future solid waste and recycling franchise agreements through a PYT Waste Disposal Program.	Air District; Shasta County Finance
D	Participate in EPA's WasteWise Communities, which offers technical assistance to promote cost savings and efficiency with waste prevention, recycling, and purchase of recycled products.	Public Works
E	Explore implementation of a commercial recycling program to divert commercial solid waste.	Public Works
	PROGRESS INDICATORS	**YEAR**
1	Community increases diversion of yard and construction and demolition wastes by 50%.	2020
2	Community increases diversion of yard and construction and demolition wastes by 50%.	2030

Measure SW-2: Methane Recovery

2020 GHG Reduction Potential: 3,319 MT CO2e/yr

2035 GHG Reduction Potential: 4,029 MT CO2e/yr

The Air Resources Board approved a regulation to reduce methane emissions from municipal solid waste landfills as an early implementing action of the California Global Warming Solutions Act (Assembly Bill 32). Per the regulation, methane capture facilities have been required at all municipal solid waste landfills since June 2010. Two landfills are used in Shasta County to dispose of waste from the community: the West Central Landfill and the Anderson Landfill. The West Central Landfill is currently an uncontrolled municipal solid waste landfill, meaning there is no methane capture infrastructure in place. However, the County is in the process of constructing a gas control system that would capture landfill-generated methane and direct it to a flare where it would be burned off, dramatically reducing the global warming potential of the gas. In the future, this system may be upgraded to a landfill gas-to-energy system under which an operator could construct a power plant to capture the landfill methane and burn it to generate electricity. The Anderson Landfill currently has a methane capture system in place with no plans for system upgrades.

The County's action effectively reduces the City's waste-related emissions. The City will consult with County staff to ensure methane capture is achieved.

ACTION		RESPONSIBILITY
Short-Term		
A	Consult with County staff to verify the installed methane capture system at the West central Landfill achieves the estimated 75% control efficiency.	Public Works
PROGRESS INDICATORS		**YEAR**
1	West Central Landfill achieves a methane control efficiency of 75%.	2020
2	West Central Landfill maintains a methane control efficiency of 75%.	2030

TRANSPORTATION/LAND USE MEASURES:

The use of motor vehicles for transporting people and products generated approximately 56% of Anderson's communitywide GHG emissions in 2008. The transportation-related measures described on the following pages describe the City's efforts to reduce auto-dependence in new development and improve biking and walking infrastructure within the community.

Measure T-1: Mixed Use Development

2020 GHG Reduction Potential: 263 MT CO_2e/yr

2035 GHG Reduction Potential: 1,014 MT CO_2e/yr

Research demonstrates that average daily shopping and errand trips in well serviced neighborhoods are less than half the distance than in neighborhoods with low levels of diversity. This research also indicates that residents who live within a ¼to ½ - mile of neighborhood commercial centers are more likely to walk or bike in order to purchase daily goods and services. Enhancing the quality and diversity

of uses in the City's neighborhood commercial centers will help decrease transportation-related GHG emissions and improve residents' quality of life.

Anderson's 2007 General Plan Update emphasizes the need for planning for the health and safety of residents, and the development of a multi-modal transportation system that benefit healthy lifestyle and connectivity at all levels. Encouraging infill mixed-use development in close proximity to the Old Town Core is an important land use policy of the 2007 General Plan Update. The City currently maintains approximately 60 acres of downtown mixed-use development and high density residential, where residents can enjoy the convenience of being within walking and biking distance from major amenities.

To promote a healthier car-free lifestyle, the City will provide streamlined permit processing and continue to seek grant funding for higher density residential and mixed-use development. The City will continue to evaluate additional areas in the City and consider adopting mixed-use residential, commercial, and office zoning to encourage active circulation (walking and bicycling) to reduce dependance on cars and therefore, help to reduce the household average VMT.

	ACTION	RESPONSIBILITY
Short-Term		
A	Conduct a community visioning process to identify the goals for commercial center retrofits and new mixed-use centers, and recommend sites with the highest potential.	Planning Department
B	Create streamlined permitting process for higher density and mixed-use developments.	Planning Department
Medium-Term		
C	Develop commercial center retrofit and mixed-use development design guidelines.	Planning Department

	PROGRESS INDICATORS	YEAR
1	100% of all new residential units constructed in mixed-use development.	2020
2	100% of all new residential units constructed in mixed-use development.	2035

Measure T-2: Bicycle Lane Expansion

2020 GHG Reduction Potential: 23 MT CO_2e/yr

2035 GHG Reduction Potential: 95 MT CO_2e/yr

In 2007, Anderson adopted the City's Bicycle Transpotation Plan in compliance with the California Bicycle Transportation Act (*California Streets and Highway Code, Chapter* 8, *Article* 3, *Section* 891.2). While the City's Bicycle Transpotation Plan addresses bicycle facilities specifically for the incorporated area of the City, it references the Shasta County Regional Bikeway Plan to address regional facilities and coordination among local agencies. Currently, the City has 0.3 miles of Class 1 bikeways, 3.5 miles of Class 2 bikeways and 1 mile of Class 3 bikeways within the City limits. In addition, the City also has 2.5 miles of Class 1 bikeways in the Anderson River Park, several miles of off-road trails adjacent to the Sacramento River, and numerous other unimproved trails. Per the 2007 Bicycle Transportation Plan, the City of Anderson proposes to expand bicycle infrastructure by adding:

- 0.9 miles of Class 1 Bikeways (off-road bike path)
- 8 miles of Class 2 Bikeways (striped lane for one-way bike travel)
- 1 mile of g Class 3 Bikeways (shared path with pedestrians and motor vehicles

The City of Anderson will continue to require appropriate land development construction to complete portions of the plan. In addition, the City will leverage Bicycle Transportation Account and Safe Routes to School grant funds with local funding to secure funding for all proposed projects.

	ACTION	RESPONSIBILITY
	Short-Term	
A	Continue to pursue grant funding opportunities to implement the Anderson Bicycle Transportation Plan.	Planning Department; Public Works
B	Establish standards for the ratio of bicycle lanes and paths to mile of road	Planning Department
C	Develop design guidelines and design standards to promote installation of bicycle infrastructure.	Planning Department
	Medium-Term	
D	Develop appropriate bicycle infrastructure for high traffic street segments and intersections.	Public Works; Development and Community Services
E	Implement a bicycle way finding / signage program.	Public Works; Development and Community Services
	PROGRESS INDICATORS	**YEAR**
1	20 new miles of Class I and II bicycles lanes constructed.	2020
2	45 new miles of Class I and II bicycles lanes constructed.	2035

Measure T-3: Pedestrian Environment Enhancements

2020 GHG Reduction Potential: 352 MT CO_2e/yr

2035 GHG Reduction Potential: 460 MT CO_2e/yr

A well connected network of sidewalks, trails, and crosswalks creates a pedestrian environment that encourages walking and improves community health. In 2011, Anderson received a Caltrans Community Based Transportation Planning (CBTP) grant to prepare a Pedestrian Accessibility and Safety Plan. The goal of this plan is to assess overall functionality of pedestrian transit to guide future pedestrian projects towards improving mobility and safety. The City conducted outreach with diverse groups, work with stakeholders and citizens to identify pedestrian needs, hazards and barriers of pedestrian transit, develop a vision statement, prioritize improvements and identify funding sources for future improvements. The final product of this grant was a Pedestrian Master Plan.

Based on the findings of the Pedestrian Master Plan, the City will continue to pursue Safe Routes to

School and other funding for construction of new sidewalks, bicycle lanes, school crossings, traffic control, and roadway improvements. The City will also continue to pursue grant funding for the repair and improvement of existing sidewalks, the completion of any gaps in the sidewalk network, and the extensions of existing sidewalks to provide access to desired areas of the City.

All new discretionary projects will develop multiuse trails that connect to regional trails and link neighborhoods to schools, shopping areas, areas of employment and recreational areas, when feasible.

	ACTION	RESPONSIBILITY
	Short-Term	
A	Pursue Safe Routes-to-School and other funding for construction of new sidewalks, bicycle lanes, school crossings, traffic control, and roadway improvements.	Planning; Public Works
B	Identify existing gaps in sidewalk infrastructure within the City and develop implementation plan to remove gaps and other barriers to pedestrian connectivity in the community.	Planning; Public Works
C	Pursue grant funding for the repair and improvement of existing sidewalks, the completion of any gaps in the sidewalk network.	Planning; Public Works
	Medium-Term	
D	Develop ordinance that requires new discretionary projects to develop multiuse, when feasible.	Planning; Public Works
	PROGRESS INDICATORS	**YEAR**
1	Improve pedestrian infrastructure and conditions in 50% of streets in the community.	2020
2	Improve pedestrian infrastructure and conditions in 100% of streets in the community.	2035

Measure T-4: Commute Trip Reduction

2020 GHG Reduction Potential: 20 MT CO_2e/yr

2035 GHG Reduction Potential: 24 MT CO_2e/yr

Approximately 76% of Anderson residents commute to work by automobile, with an average auto commute length of 9 miles. The remaining 24% commute by a variety of methods, including public transportation, carpooling, bicycling, walking, and telecommuting. Social media websites and other internet-based technologies can facilitate ridesharing by connecting interested drivers and passengers. Strategic facility improvements at important public transportation nodes can also increase ridership by removing some of the perceived barriers (e.g., unpredictable arrival/departure times, unsafe/unmarked bus stops). Increasing carpooling and public transit use will reduce the total vehicle miles traveled by County residents, resulting in fewer GHG emissions.

The City will work with SCRTA and other agencies to facilitate ridesharing opportunities, including carpooling and vanpooling. Specifically, the City will work with partners to develop ride-matching systems to use current technologies (e.g., cell phone-enabled ride-match applications), and develop a ride-match social networking website and online electronic payment options. The City and SCRTA will also evaluate the need for additional park-and-ride lots, and will pursue funding for bus stop improvements, including shelters, seating, and electronic signage.

ACTION		RESPONSIBILITY
Short-Term		
A	Develop a ride-matching website	SCRTA
B	Identify transit stops in high-activity areas that would benefit from additional enhancements (e.g., shelter, seating, electronic arrival/departure information)	SCRTA
C	Pursue funding for transit stop improvements	SCRTA

PROGRESS INDICATORS		YEAR
1	10% of employees in Anderson commute via carpool or public transit	2020
2	10% of employees in Anderson commute via carpool or public transit	2035

CARBON SEQUESTRATION MEASURES:

As trees grow they capture and store atmospheric carbon within their trunks, branches, and roots. By planting new trees, the City can offset a portion of the community's GHG emissions. The following measure describes the City's efforts to expand its urban forest.

Measure GI-1: Urban Forest

2020 GHG Reduction Potential: 50 MT CO_2e/yr

2035 GHG Reduction Potential: 110 MT CO_2e/yr

An "*urban forest*" encompasses all of the trees in a community, from street trees and private landscapes to parks and natural, open spaces. The urban forest can shade buildings and streets, improving community comfort and reducing the need for building air conditioning. Trees also provide improved water and air quality, increased wildlife habitat, and neighborhood beautification.

Trees can help the City achieve its GHG reduction goal by reducing building energy-related emissions, as well as through carbon sequestration. The capacity of a tree to reduce GHG emissions is dependent on its age and species. As trees mature, their canopies increase in size and provide higher levels of shade and greater levels of building cooling in hot weather. Trees with larger canopies and dense foliage provide more shade than other species. Large, deciduous species are ideal for reducing building energy as they provide shade in summer, but allow winter sunlight into buildings for passive solar gain in cooler weather. Additionally, trees gain carbon-capturing biomass in their trunks and roots as they absorb carbon from the air to grow.

The City will continue to evaluate the carbon sequestration potential of planned urban forestry projects. The City will continue to require trees be planted in new residential developments. The City will also continue to identify potential locations for and plant additional street trees within the old town core and along pedestrian trails. Furthermore the City will develop an outreach campaign to encourage the planting of shade trees on private residential and commercial properties.

ACTION		RESPONSIBILITY
Short-Term		
A	Develop outreach program to advertise the benefits of planting shade trees around buildings and parking lots.	Planning
B	Evaluate the carbon sequestration potential of planned urban forestry projects.	Planning
Medium-Term		
D	Identify potential locations and plant trees within the downtown commercial district.	Planning; Public Works
PROGRESS INDICATORS		**YEAR**
1	500 new trees are planted.	2020
2	1150 new trees are planted.	2035

IMPLEMENTATION AND MONITORING

This section describes how the City will implement the emission reduction measures and actions contained in the CAP. The section contains the following three subsections:

- **Measure Implementation** - Describes how City staff will implement CAP measures and their related actions, and the role of the progress indicators and other guidance provided within the measure tables.
- **Program Evaluation and Evolution -** Discusses the need to evaluate, update, and amend the CAP over time, so, in order to ensure that the program remains effective and current.
- **Relationship to the California Environmental Quality Act**- Describes the relationship between the CAP and the California Environmental Quality Act (CEQA), and establishes criteria for City staff to use when determining if a proposed project is consistent with the document.

MEASURE IMPLEMENTATION

Ensuring that the measures translate from policy language into on-the-ground results is critical to the success of the CAP. To facilitate this, each measure contains a table that identifies the specific actions the City will carry out. The table also identifies responsible departments for each action. The second section of each table provides progress indicators that to enable City staff, the City Council, and the public to track measure implementation and monitor overall CAP progress.

The tables provide both interim (2020) and final (2035) progress indicators where possible. Interim progress indicators are especially important, as they provide mid-course checks to evaluate if a measure is on the right path to achieving its GHG reductions.

Upon adoption of the CAP, the City departments identified will become responsible for implementing assigned actions. Key staff in each department will facilitate and oversee this work action implementation. Some actions will require inter-departmental or inter-agency cooperation, and appropriate partnerships will need to be established. The City would also need to assess its progress towards measure implementation.

PROGRAM EVALUATION AND EVOLUTION

The CAP represents the City's best initial attempt to create an organized, communitywide response to the threat of climate change at the time of preparation. Staff will need to evaluate the program's performance over time and be ready to alter or amend the plan if it is not achieving the reduction targets.

Program Evaluation

Two types of performance evaluation are important: (A) evaluation of the community's overall ability to reduce GHG emissions as a whole and (B) evaluation of the performance of individual CAP measures. Communitywide emission inventories will provide the best indication of CAP effectiveness. It will be important to reconcile actual growth in the City versus the growth projected when the CAP was developed. Conducting these inventories periodically will enable direct comparison to the 2008 baseline inventory and will demonstrate the CAP's ability to achieve the adopted reduction targets. The City will coordinate communitywide inventories in 2015, 2020, 2025, 2030, and 2035 to assess the level of GHG reduction goal attainment.

While communitywide inventories provide information about overall GHG reductions, it will also be important to understand the effectiveness of each measure. Evaluation of the emissions reduction capacity of individual measures will improve staff and decision makers' ability to manage and implement the CAP. The City can promote and reinforce successful measures and reevaluate or replace under-performing ones. Evaluating measure performance will require data regarding actual community participation rates and measurement of GHG reduction capacity.

The City will coordinate measure evaluation on the same schedule as the communitywide inventories, and summarize the progress towards meeting the GHG reduction goal in a report that describes:

- Achievement of progress indicators
- Participation rates (where applicable)
- Estimated annual GHG reductions in 2020
- Remaining barriers to implementation

Importantly, a progress report on the CAP action items will also be provided to decision-makers on an annual basis. The progress report will include a brief assessment on the progress and implementation of individual CAP measures, including how new projects have incorporated relevant measures. The progress report will allow for gaps and new opportunities to be identified. It also will allow for additional measures to be added to the CAP.

It will be necessary to institute an annual monitoring program that tracks the performance of individual measures. The data collection and processing necessary to establish performance levels would be conducted by the responsible parties identified for each measure (as noted in the measure tables).

Program Evolution

To remain relevant, the City must be prepared to adapt and transform the CAP over time. It is likely that new information about climate change science and risk will emerge, new GHG reduction technologies and innovative municipal strategies will be developed, new financing will be available, and State and federal legislation will change. It is also possible that communitywide inventories will indicate that the community is not achieving its adopted goal. As part of the evaluations identified above, the City will assess the implications of new scientific findings and technology, explore new opportunities for GHG reduction, respond to changes in climate policy, and incorporate these changes in future updates to the CAP to ensure an effective and efficient program.

RELATIONSHIP TO THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA Guidelines, Section 15183.5 describes the requirements for a emissions reduction plan to be able to provide tiering and streamlining benefits to future development projects. Section 15183.5(b)(1)(D) specifically states that the plan must contain measures, that if implemented on a project-by-project basis, would collectively achieve the plan's established emissions reduction target. This guidance essentially means that each future project seeking to use CEQA tiering will need to demonstrate compliance with the CAP.

Project Consistency with the CAP

The CAP identifies both mandatory and voluntary emission reduction measures that would apply to different types of future proposed projects.

Mandatory Measures

For each of the following mandatory measures, the CAP either reinforces the implementation of current codes and ordinances, or recommends changes to the City's codes and ordinances that would result in GHG reductions.

- **Measure BE-2:** New Construction

All new projects would be required to comply with these codes and ordinances, as applicable. This would make these measures binding and enforceable on new projects, within the meaning established by State CEQA Guidelines Section 15183.5(b)(2). The proposed project would describe how each measure would be integrated into the development in its application materials and environmental documentation.

Voluntary Measures

The remaining measures are essentially voluntary, relying on assumed levels of community participation to create communitywide emission reductions. These measures will be tracked to ensure participatory rates are reached and that the voluntary measures are being adequately applied to new and existing projects. If not, then additional, more aggressive actions will be necessary to correct any short-fall.